



MINT improves GPS satellite tracking process

by Rex Swenson, Munitions Directorate

EGLIN AIR FORCE BASE, Fla. — The Air Force Research Laboratory's Munitions Directorate Navigation and Control Team recently completed testing on a program called Miniature Integrated Navigation Technology.

The new technology will enable future Global Positioning System (GPS)/Inertial Navigation System (INS)-guided weapon systems to accurately navigate closer to targets protected by higher levels of radio frequency interference.

"MINT increases the jamming resistance of a GPS/INS without adding dedicated antijam electronics," said Capt. Reece Tredway, MINT program manager.

Researchers from the directorate's Navigation and Control Team worked with Boeing, Draper Laboratory, and Honeywell engineers to demonstrate the technology on a mobile test vehicle and aboard a Boeing Company-owned King Air aircraft in St. Louis, Mo.

"MINT pushes the state of the art in navigator design by incorporating a low-cost microelectromechanical sensor inertial measurement unit (IMU), a GPS receiver with a selective availability/antispoofing module, and an ultratightly coupled GPS/INS integration algorithm," said Captain Tredway.

"The current state of the art for inertial sensors is based on a ring laser gyro technology. Incorporating microelectromechanical sensor technology will significantly reduce the cost and size of future weapon navigators," he said.

According to Captain Tredway, the MINT program demonstrated accurate navigation in environments with jammer-to-signal ratios over 70 dB during ground and flight testing. MINT is effective against all jammer types by optimally processing IMU data with raw GPS measurement data. @